

# BIOTOXIN QUARTERLY REPORT

## January - March 2002



### BIOTOXIN SUMMARY

#### Record Domoic Acid Levels

The enclosed reports (No. 02-09 through 02-14) provide a summary of biotoxin activity and toxigenic phytoplankton distribution for the months of January through March 2002.

*January* – *Alexandrium* was absent from all coastal samples during January and PSP toxicity was not detected in any shellfish sample. The relative abundance of *Pseudo-nitzschia* increased significantly for a brief time at sites along the Santa Barbara coast and at one site in San Diego County.

*February* - The relative abundance of *Pseudo-nitzschia* increased at the beginning of February just offshore of the Los Angeles coast. In addition, a high relative abundance of *Pseudo-nitzschia* was observed at Gaviota Pier (Santa Barbara County) by February 5, with high numbers of this diatom occurring down coast at Goleta Pier by mid month. Similar increases in the relative abundance of this diatom occurred by mid month at sites along

the San Luis Obispo coast. By the end of February there were reports of a *Pseudo-nitzschia* bloom farther north in the Santa Cruz area of Monterey Bay. Mussels collected at the Santa Cruz Pier on February 21 by U.C. Santa Cruz contained 120 ppm of domoic acid. This is the highest level of domoic acid ever recorded in shellfish from California. Samples of anchovies and sardines caught in Monterey Bay were collected by the DHS Food and Drug Branch (FDB) and analyzed by the Food and Drug Laboratory (FDL) for domoic acid. Low levels of DA were detected by February 18 and concentrations above the alert level were detected by the end of the month.

*March* – *Alexandrium* increased slightly at several locations, including inside Tomales Bay. The latter observation coincided with initial low levels of PSP toxins that increased

above the alert level by the end of March. The relative abundance of *Pseudo-nitzschia* appeared to peak by the beginning of March and slowly declined throughout the month. Domoic acid levels began declining as well, although there was a brief increase in toxin levels (44 ppm) in mussels by March 12. Samples of anchovies collected by FDB contained very high levels of DA (e.g., > 100 ppm), with levels declining throughout the month.

As the Santa Cruz bloom declined another began offshore of Los Angeles. Volunteer observers on Catalina Island and just offshore of the Island reported a large bloom on the last weekend of March, coinciding with the first reported marine mammal stranding on a beach in Los Angeles. A similar pattern of increase in numbers of *Pseudo-nitzschia* was observed along the Santa Barbara coast by the end of March. The concentration of domoic acid in mussels from this area increased to 16 ppm as the bloom increased at the end of the month. Marine mammal rescue workers reported 23 stranded dolphins and 343 beached sea lions along the coast of Los Angeles and Ventura counties by the end of March.

This sequence of events was an early indication of what would become a major domoic acid event along the southern California coast, setting records for domoic acid in shellfish and marine mammal strandings in southern California in subsequent months.



### How to Contact Us:

*The Biotoxin Quarterly Report is prepared and distributed by the California Department of Health Services' Marine Biotoxin Monitoring and Control Program.*

*For information on our program please call (510) 540-3423, fax us at (510) 540-2716, or send an email to [glangloi@ix.netcom.com](mailto:glangloi@ix.netcom.com).*

*Call our toll-free number for recorded information on shellfish quarantines related to marine biotoxins: (800) 553-4133.*

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**Table 1.** California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during January 2002.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	5
	Humboldt County Environmental Health Department	5
<b>Mendocino</b>	Mendocino County Environmental Health Department	1
<b>Sonoma</b>	None Submitted	
<b>Marin</b>	Cove Mussel Company	2
	CDHS Marine Biotoxin Program	1
	Hog Island Oyster Company	3
	Johnson Oyster Company	20
	Marin Oyster Company	5
<b>San Francisco</b>	San Francisco County Health Department	1
<b>San Mateo</b>	San Mateo County Environmental Health Department	2
<b>Santa Cruz</b>	Santa Cruz County Environmental Health Department	1
	U.C. Santa Cruz	1
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	Williams Shellfish Company	8
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Science Institute	4
<b>Ventura</b>	None Submitted	
<b>Los Angeles</b>	Los Angeles County Health Department	1
<b>Orange</b>	Orange County Health Care Agency	1
	Ecomar, Inc.	4
<b>San Diego</b>	Carlsbad Aquafarms, Inc.	5
	CDHS Volunteer (Paul Sims)	2

**Table 2.** Agencies and organizations participating in marine phytoplankton sample collection in California during January 2002.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	None Submitted	
<b>Humboldt</b>	Coast Seafood Company	5
	Arcata High School	5
<b>Mendocino</b>	CDHS Volunteer (Jim Wesley)	1
<b>Sonoma</b>	Bodega Marine Lab	2
	CDHS Volunteer (Cathleen Cannon)	1
<b>Marin</b>	CDHS Volunteer (Brent Anderson, Cal Strobel)	2
	CDHS Marine Biotoxin Program	1
	Johnson Oyster Company	20
<b>Alameda</b>	None Submitted	
<b>San Francisco</b>	CDHS Volunteer (Eugenia McNaughton)	4
<b>San Mateo</b>	None Submitted	
<b>Santa Cruz</b>	Santa Cruz County Environmental Health Department	3
	San Lorenzo Valley High School	3
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	CDHS Volunteer (Judy and Whit Whitmire, Renee and Auburn Atkins, Jim and Nancy Hale)	6
	Morro Bay National Estuary Program	1
	Tenera Environmental	4
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Sciences	5
	California Department of Parks and Recreation	1
	Santa Barbara City College	1
<b>Ventura</b>	CDHS Volunteer (Jeff Kermode)	1
<b>Los Angeles</b>	Los Angeles County Sanitation District	2
	Los Angeles County Health Department	2
<b>Orange</b>	Ecomar, Inc.	3
<b>San Diego</b>	CDHS Volunteers (Randy and Bill Dick)	1
	San Diego County Environmental Health Department	3

**Table 3.** California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during February 2002.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	4
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	CDHS Volunteer (Tim Callan)	1
<b>Marin</b>	Cove Mussel Company	2
	Hog Island Oyster Company	2
	Johnson Oyster Company	16
	Marin Oyster Company	4
<b>San Francisco</b>	San Francisco County Health Department	1
<b>San Mateo</b>	San Mateo County Environmental Health Department	2
<b>Santa Cruz</b>	U.C. Santa Cruz	2
<b>Monterey</b>	CDHS Volunteer	1
<b>San Luis Obispo</b>	Williams Shellfish Company	8
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Science Institute	4
<b>Ventura</b>	CDHS Volunteer (Bill Weinerth)	2
<b>Los Angeles</b>	Los Angeles County Health Department	1
<b>Orange</b>	Ecomar, Inc.	4
	Orange County Health Care Agency	1
<b>San Diego</b>	Carlsbad Aquafarms, Inc.	4
	CDHS Volunteer (Paul Sims)	1

**Table 4.** Agencies and organizations participating in marine phytoplankton sample collection in California during February 2002.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	None Submitted	
<b>Humboldt</b>	Coast Seafood Company	4
	Arcata High School	3
<b>Mendocino</b>	CDHS Volunteer (Amy Johnson)	1
<b>Sonoma</b>	Bodega Marine Laboratory	3
<b>Marin</b>	CDHS Volunteer (Brent Anderson, Richard Plant)	4
	California Department of Fish and Game	3
	Johnson Oyster Company	16
<b>Alameda</b>	None Submitted	
<b>San Francisco</b>	CDHS Volunteer (Eugenia McNaughton)	3
	Gulf of the Farallones National Marine Sanctuary	1
<b>San Mateo</b>	None Submitted	
<b>Santa Cruz</b>	None Submitted	
<b>Monterey</b>	CDHS Volunteer (Whit and Judy Whitmire)	1
<b>San Luis Obispo</b>	CDHS Volunteer (Whit and Judy Whitmire, Renee and Auburn Atkins)	11
	Tenera Environmental	2
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Sciences	4
	California Department of Parks and Recreation	2
	Santa Barbara City College	2
<b>Ventura</b>	None Submitted	
<b>Los Angeles</b>	Los Angeles County Sanitation District	1
	Los Angeles County Health Department	2
	Catalina Island Marine Institute	4
	Catalina Tall Ships Expeditions	4
<b>Orange</b>	None Submitted	
<b>San Diego</b>	CDHS Volunteer (Jeff Kermode)	1
	San Diego County Environmental Health Department	4

**Table 5.** California Marine Biotoxin Monitoring and Control Program participants submitting shellfish samples during March 2002.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	Del Norte County Health Department	1
<b>Humboldt</b>	Coast Seafood Company	4
<b>Mendocino</b>	None Submitted	
<b>Sonoma</b>	None Submitted	
<b>Marin</b>	Cove Mussel Company	4
	Hog Island Oyster Company	4
	Johnson Oyster Company	16
	Marin Oyster Company	6
<b>San Francisco</b>	San Francisco County Health Department	1
<b>San Mateo</b>	San Mateo County Environmental Health Department	2
<b>Santa Cruz</b>	Santa Cruz County Environmental Health Department	4
	U.C. Santa Cruz	3
<b>Monterey</b>	None Submitted	
<b>San Luis Obispo</b>	Williams Shellfish Company	8
<b>Santa Barbara</b>	U.C. Santa Barbara Marine Science Institute	4
<b>Ventura</b>	CDHS Volunteer (Bill Weinerth)	1
<b>Los Angeles</b>	Los Angeles County Health Department	1
<b>Orange</b>	Orange County Health Care Agency	1
	Ecomar, Inc.	4
<b>San Diego</b>	Carlsbad Aquafarms, Inc.	2
	CDHS Volunteer (Paul Sims)	1

**Table 6.** Agencies and organizations participating in marine phytoplankton sample collection in California during March 2002.

COUNTY	AGENCY	SAMPLES
<b>Del Norte</b>	None Submitted	
<b>Humboldt</b>	Coast Seafood Company	2
	Arcata High School	2
<b>Mendocino</b>	CDHS Volunteer (Amy Johnson)	1
<b>Sonoma</b>	Bodega Marine Lab	5
<b>Marin</b>	CDHS Volunteer (Brent Anderson, Cal Strobel)	5
	Johnson Oyster Company	16
<b>Alameda</b>	None Submitted	
<b>San Francisco</b>	CDHS Volunteer (Eugenia McNaughton)	4
<b>San Mateo</b>	San Mateo County Environmental Health Department	1
	CDHS Volunteer (Sandy Emerson)	1
<b>Santa Cruz</b>	Santa Cruz County Environmental Health Department	4
	San Lorenzo Valley High School	1
	CDHS Marine Biotoxin Program	4
<b>Monterey</b>	U.C. Reserve System	1
	Pacific Cetacean Group	1
	CDHS Marine Biotoxin Program	1
<b>San Luis Obispo</b>	CDHS Volunteer (Whit and Judy Whitmire, Renee and Auburn Atkins)	5
	Tenera Environmental	3
<b>Santa Barbara</b>	California Department of Parks and Recreation	1
	U.C. Santa Barbara Marine Sciences	4
	Santa Barbara City College	1
<b>Ventura</b>	California Department of Parks and Recreation	1
<b>Los Angeles</b>	Los Angeles County Sanitation District	2
	Los Angeles County Health Department	4
	Catalina Tall Ships Expeditions	2
	Catalina Island Marine Institute	6
<b>Orange</b>	Orange County Sanitation District	1
	Ecomar, Inc.	1
	Orange County Sanitation District	2
<b>San Diego</b>	San Diego County Environmental Health Department	4

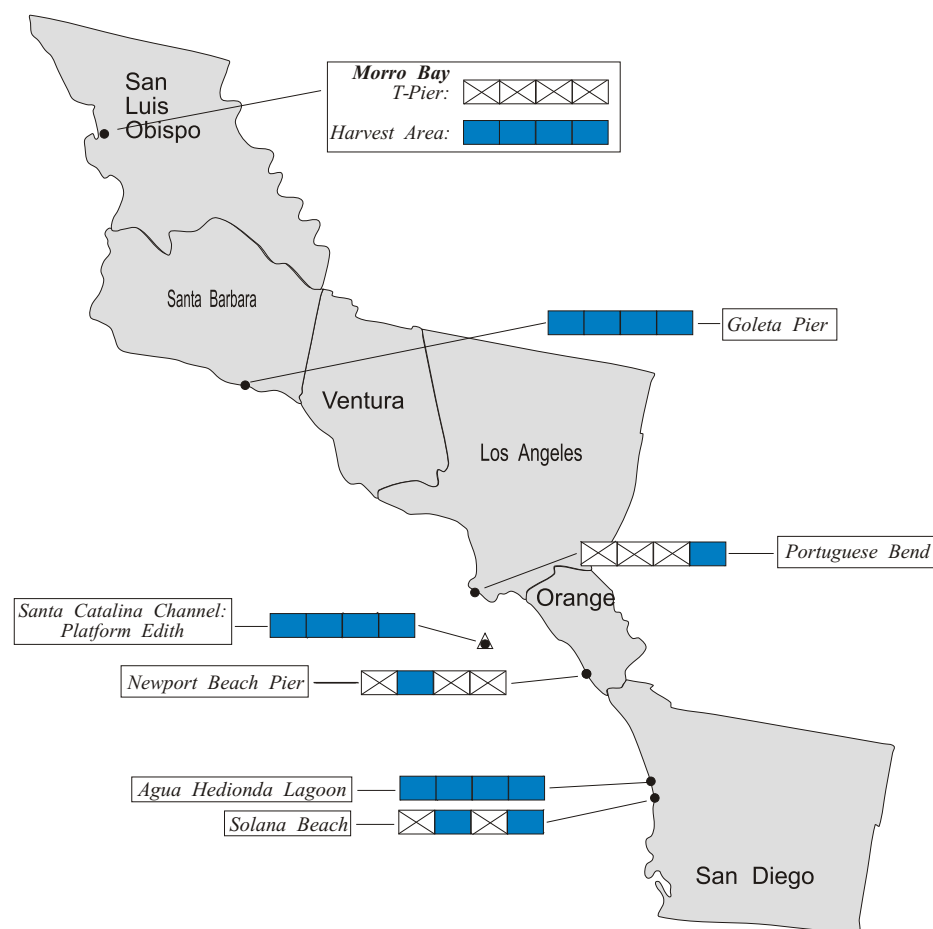


# SHELLFISH BIOTOXIN MONTHLY REPORT

January 2002

Technical Report No. 02-09

## Distribution of Shellfish Biotoxins Southern California



### KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

**PSP Range:** (ug/100 g)  
no sample not detected < 80<sup>1</sup> ≥ 80

**DA Range:** (ppm)  
no sample not detected < 20<sup>2</sup> ≥ 20

<sup>1</sup>PSP Alert Level <sup>2</sup>DA Alert Level  
● = Single Site ● = Multiple Sites ▲ = Offshore Site

Source: DHSMarine Biotoxin Monitoring and Control Program, January 2002.

### INTRODUCTION:

Please note the following conventions: (i) All data are for mussel samples, unless otherwise noted; (ii) All samples are analyzed for PSP toxins; domoic acid (DA) analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA). Please refer to the figure key for an explanation of the symbols used for the time of month of sample collection and the toxicity range.

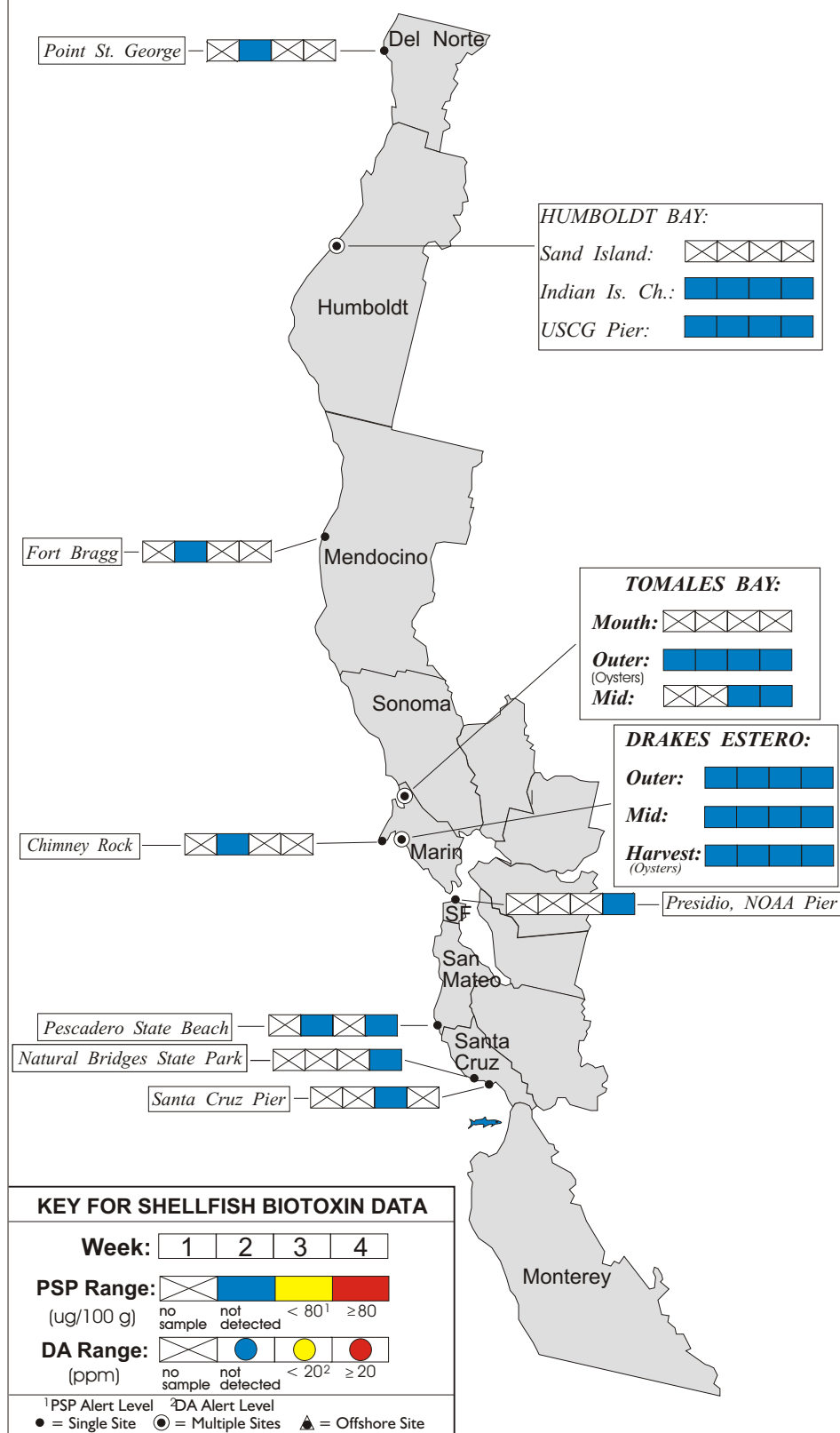
### Southern California Summary:

**Paralytic Shellfish Poisoning (PSP):** PSP toxins were not detected in any shellfish samples from southern California sites during January.

*For Information on our Volunteer  
Field Sampling Program Please Call:*

**(510) 540-3423**

## Distribution of Shellfish Biotoxins Northern California



### Northern California Summary:

#### Paralytic Shellfish Poisoning (PSP):

PSP toxins were not detected in shellfish sampled along the northern California coastline during January. The persistent low levels of these toxins that were observed in Humboldt and Del Norte counties during December finally disappeared by January.

#### Domoic Acid (DA):

Samples of sardines and anchovies caught from Monterey Bay were collected by the DHS Food and Drug Branch and analyzed by the Food and Drug Laboratory. None of the samples tested contained domoic acid.

*The Marine Biotoxin Monitoring and Control Program is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins.*

*For More Information Please Call:  
(510) 540 - 3423*

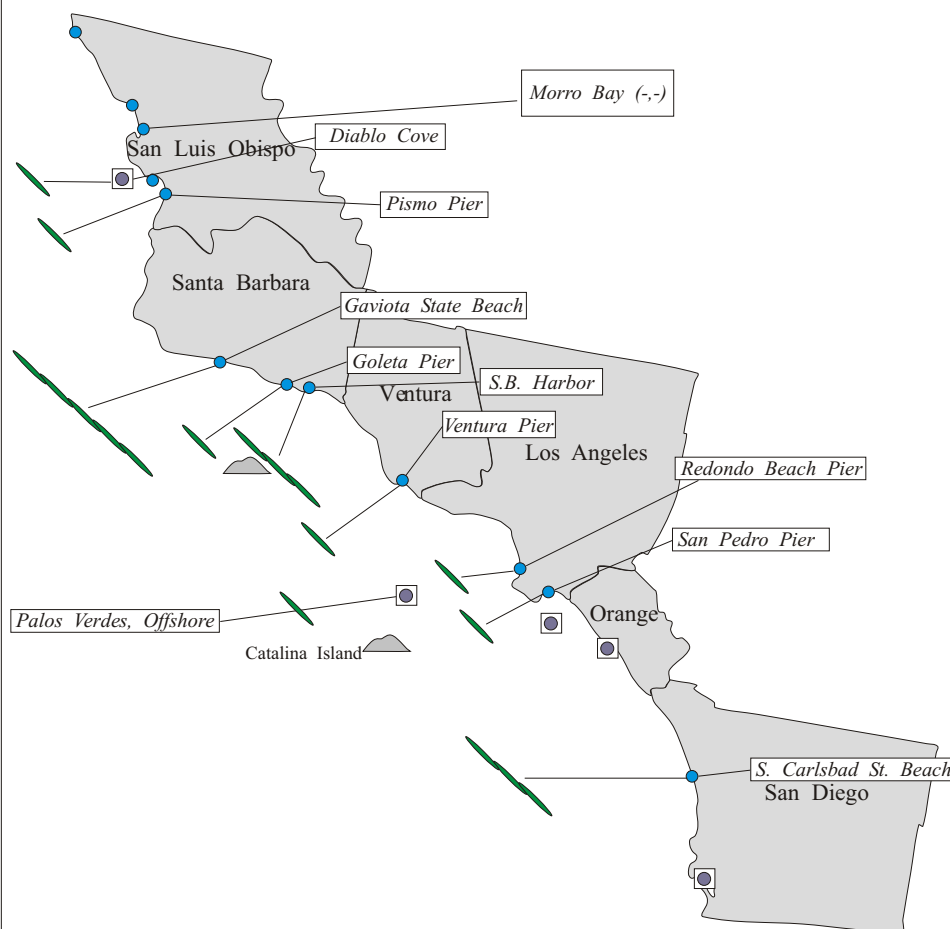
*For Recorded Biotoxin Information Call:  
(800) 553 - 4133*

# Phytoplankton Monthly Report

January 2002

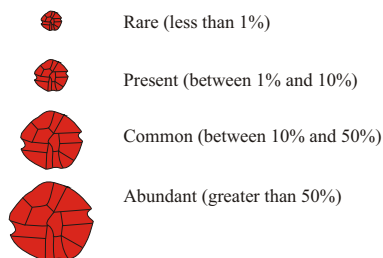
Technical Report No. 02-10

## Distribution of Toxin-Producing Phytoplankton Southern California



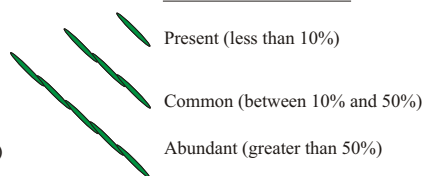
### Relative Abundance of Known Toxin Producers

#### Alexandrium Species



For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a,p) = Abundance for Alexandrium and Pseudo-nitzschia.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

#### Pseudo-nitzschia Species



#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

## Southern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was not observed along the southern California coast in January.

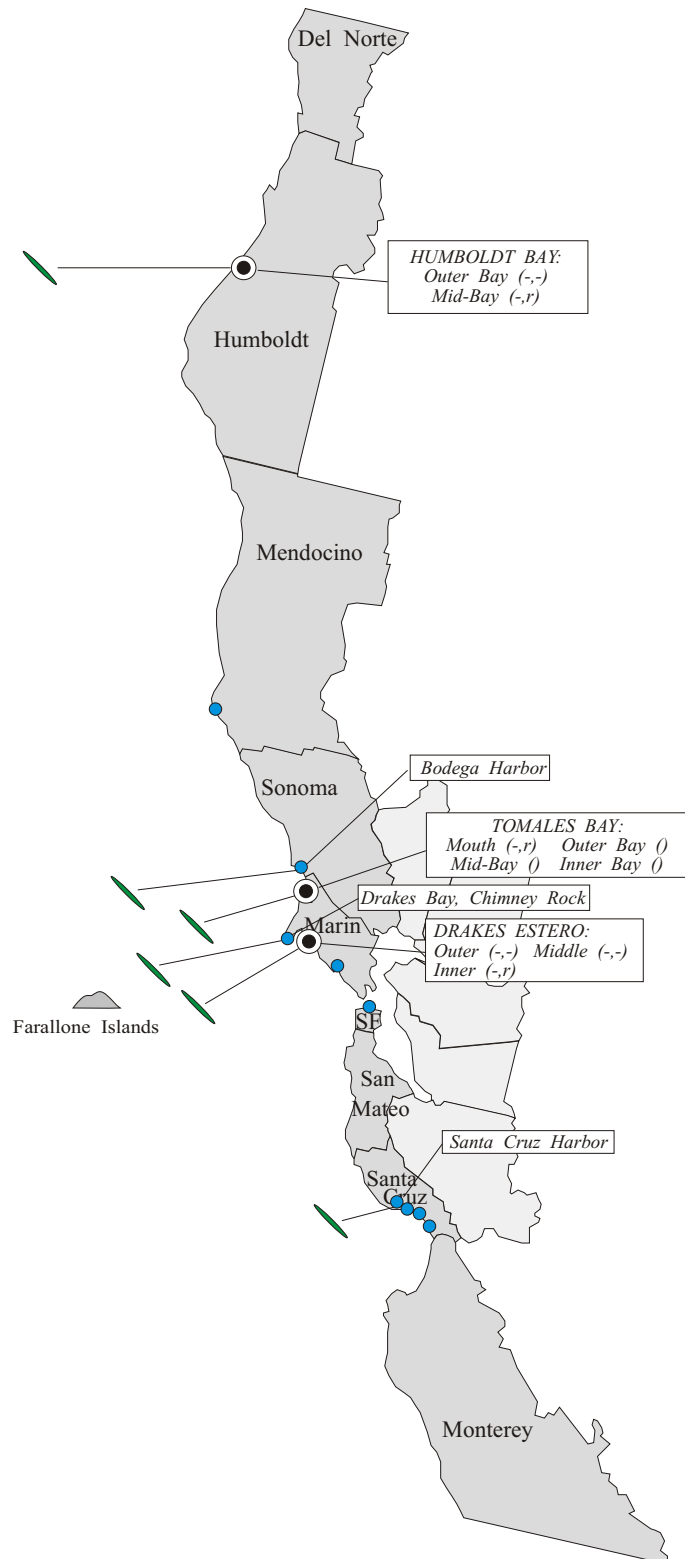
*Pseudo-nitzschia species* (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* numbers increased along the southern California coast towards the end of January. This diatom was abundant in a sample collected from Gaviota Pier (Santa Barbara County) on January 30. Elevated numbers of *Pseudo-nitzschia* were also observed inside Santa Barbara Harbor (January 31) and farther south at South Carlsbad State Beach (January 29).

*The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.*

**For More Information Please Call:**  
(510) 540 - 3423

**For Recorded Biotxin Information Call:**  
(800) 553 - 4133

## Distribution of Toxin-Producing Phytoplankton Northern California



### Northern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was not observed along the northern California coast in January.

*Pseudo-nitzschia* species (includes all known potential domoic acid producing diatoms). Very low numbers of *Pseudo-nitzschia* were observed at several sites along the northern California coast in January.

The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.

For More Information Please Call:  
(510) 540 - 3423

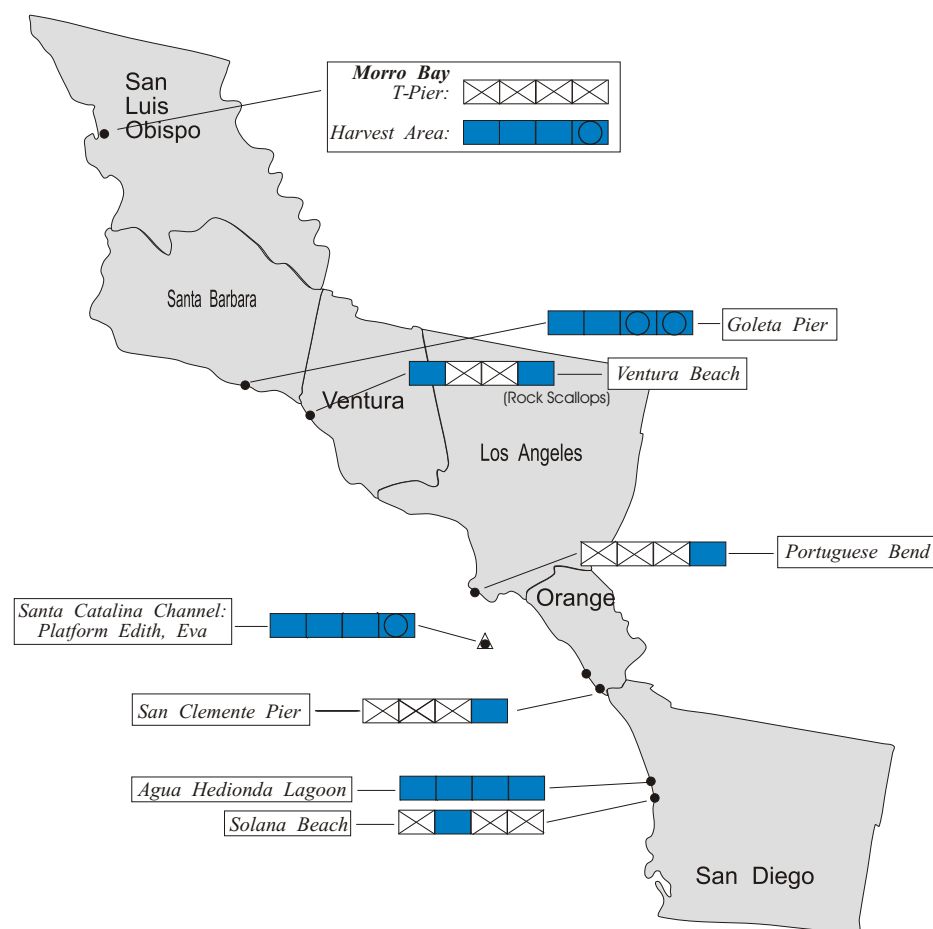
For Recorded Biotxin Information Call:  
(800) 553 - 4133

# SHELLFISH BIOTOXIN MONTHLY REPORT

February 2002

Technical Report No. 02-11

## Distribution of Shellfish Biotoxins Southern California



### KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

**PSP Range:** [X][Blue][Yellow][Red]  
(ug/100 g) no sample not detected < 80<sup>1</sup> ≥ 80

**DA Range:** [X][Blue][Yellow][Red]  
(ppm) no sample not detected < 20<sup>2</sup> ≥ 20

<sup>1</sup>PSP Alert Level <sup>2</sup>DA Alert Level  
● = Single Site ● = Multiple Sites ▲ = Offshore Site

Source: DHSMarine Biotoxin Monitoring and Control Program, February 2002.

## INTRODUCTION:

Please note the following conventions: (i) All data are for mussel samples, unless otherwise noted; (ii) All samples are analyzed for PSP toxins; domoic acid (DA) analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA). Please refer to the figure key for an explanation of the symbols used for the time of month of sample collection and the toxicity range.

## Southern California Summary:

**Paralytic Shellfish Poisoning (PSP):** PSP toxins were not detected in any shellfish samples from southern California sites during February.

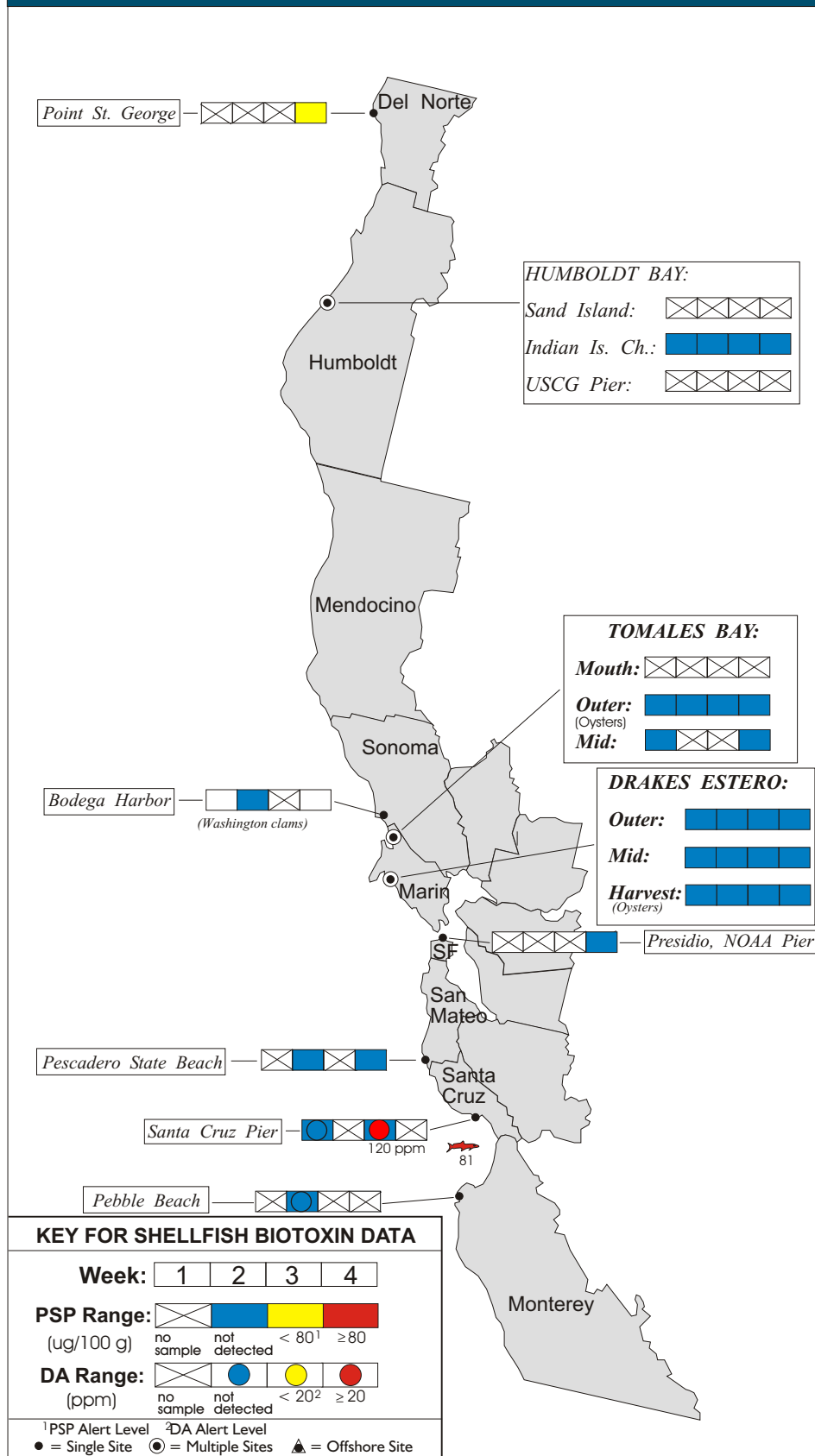
### Domoic Acid (DA):

Although *Pseudo-nitzschia* increased briefly at several locations along the southern California coast in February, DA was not detected in any shellfish samples.

*For Information on our Volunteer  
Field Sampling Program Please Call:*

**(510) 540-3423**

## Distribution of Shellfish Biotoxins Northern California



### Northern California Summary:

#### Paralytic Shellfish Poisoning (PSP):

PSP toxins were detected in shellfish from Point St. George (Del Norte County) on February 26.

#### Domoic Acid (DA):

An increase in *Pseudo-nitzschia* in the Santa Cruz area of Monterey Bay was detected by researchers at the University of California, Santa Cruz (UCSC) towards the latter part of February. UCSC collected mussel samples on February 21 from the Santa Cruz Pier and shipped them to the DHS Food and Drug Laboratory (FDL). FDL reported a concentration of 120 ppm of DA in this sample, the highest concentration of this toxin ever measured in shellfish from the California coast. Earlier samples from this site (February 2) and along the south coast of Monterey County (February 9) did not contain DA. Samples of sardines and anchovies caught in Monterey Bay were collected by the Food and Drug Branch. Low concentrations of DA were first detected in fish caught on February 18. By February 28 DA concentrations had exceeded the alert level. DHS contacted members of the sampling networks for shellfish and phytoplankton to increase our surveillance of the coast. Despite the high concentration of DA in the Santa Cruz sample there were no reports of marine mammal impacts in this region.

*The Marine Biotoxin Monitoring and Control Program is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins.*

*For More Information Please Call:*  
(510) 540 - 3423

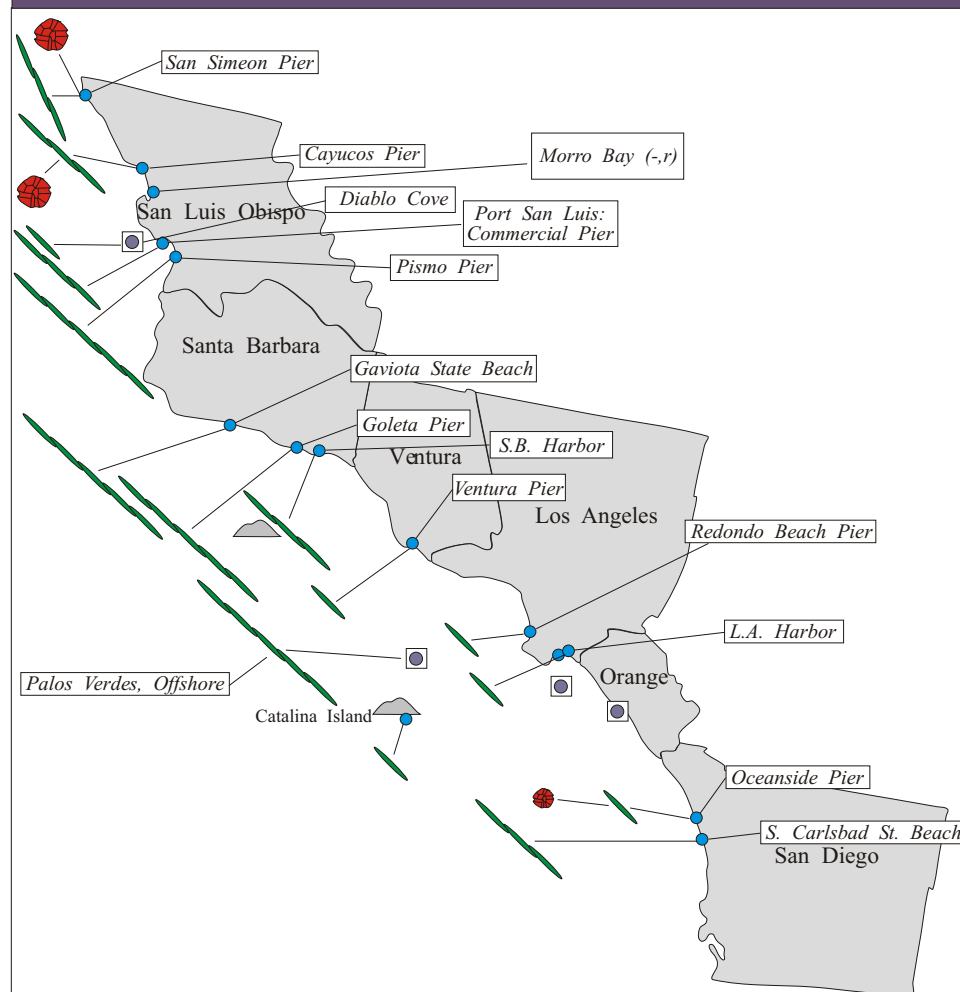
*For Recorded Biotoxin Information Call:*  
(800) 553 - 4133

# Phytoplankton Monthly Report

February 2002

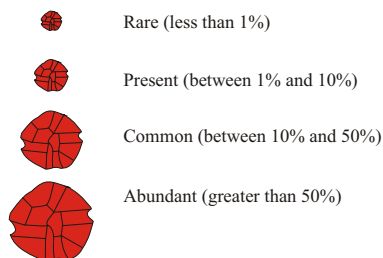
Technical Report No. 02-12

## Distribution of Toxin-Producing Phytoplankton Southern California



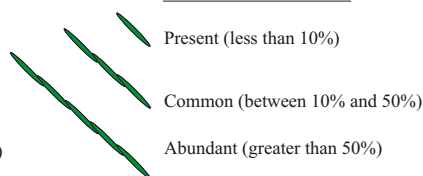
### Relative Abundance of Known Toxin Producers

#### Alexandrium Species



For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

#### Pseudo-nitzschia Species



#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

## Southern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). Low numbers of *Alexandrium* were observed at two sites along the San Luis Obispo coast and also at one San Diego site in February.

*Pseudo-nitzschia* species (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* numbers increased along the southern California coast at several locations in February.

This diatom increased in relative abundance at several sites along the San Luis Obispo coast by mid-February, then declined by the end of the month. A similar pattern was observed along the Santa Barbara coast. The increase observed at Gaviota Pier in January continued through the beginning of February. By mid-month this diatom was abundant at Goleta Pier. The relative abundance of this diatom decreased by the end of February at these sites. Elevated numbers of *Pseudo-nitzschia* were also observed offshore of Los Angeles (February 5) and low numbers were observed farther offshore at Catalina Island (February 24).

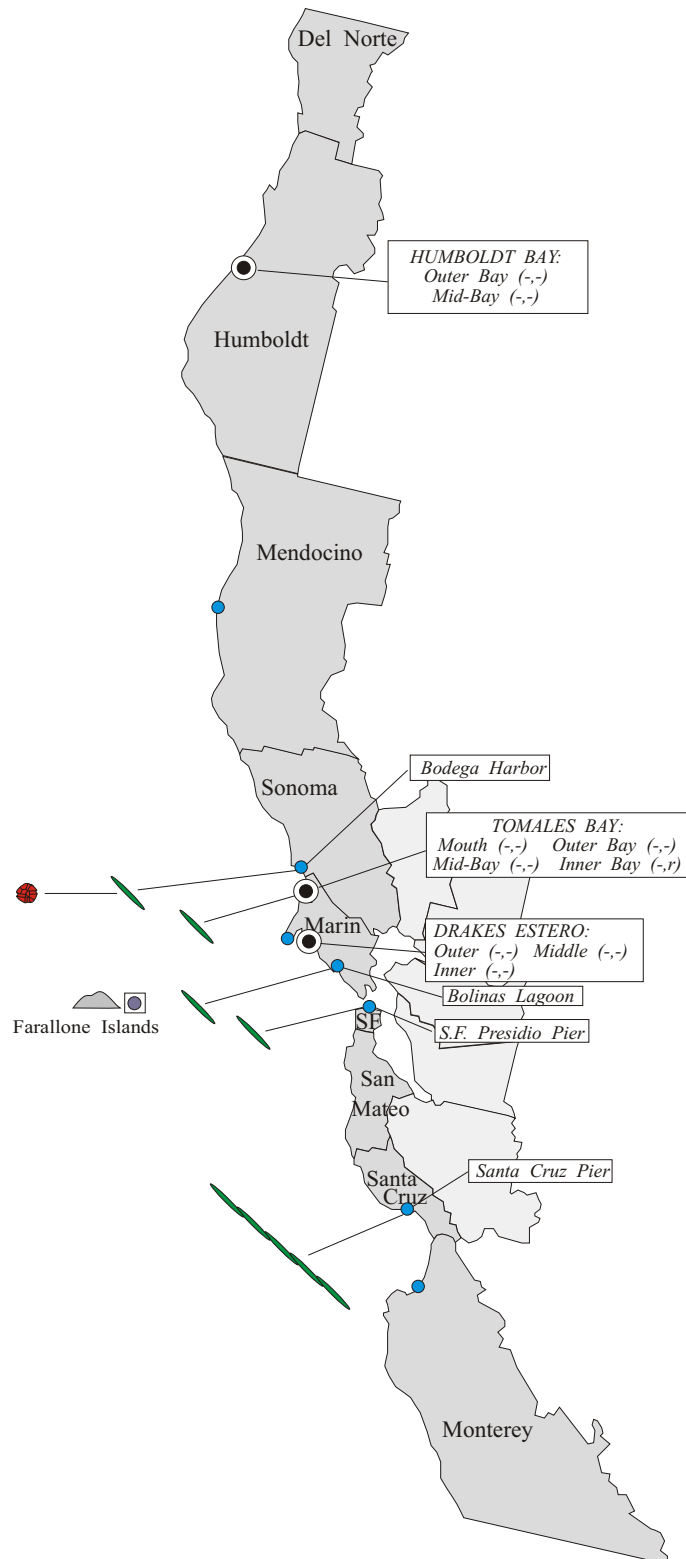
*The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.*

**For More Information Please Call:**  
(510) 540 - 3423

**For Recorded Biotxin Information Call:**  
(800) 553 - 4133



## Distribution of Toxin-Producing Phytoplankton Northern California



### Northern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). *Alexandrium* was observed at one location along the northern California coast in February. Low numbers of this dinoflagellate were detected in a sample from Bodega Harbor collected on February 22.

*Pseudo-nitzschia species* (includes all known potential domoic acid producing diatoms). Very low numbers of *Pseudo-nitzschia* were observed at several sites between San Francisco and Sonoma counties in February. Researchers at the University of California, Santa Cruz (UCSC) reported the onset of a *Pseudo-nitzschia* bloom in late February in the Santa Cruz area of Monterey Bay. Analyses of mussel samples provided by UCSC revealed very high levels of domoic acid (see Technical Report No. 02-11 for shellfish toxicity data) at this site.

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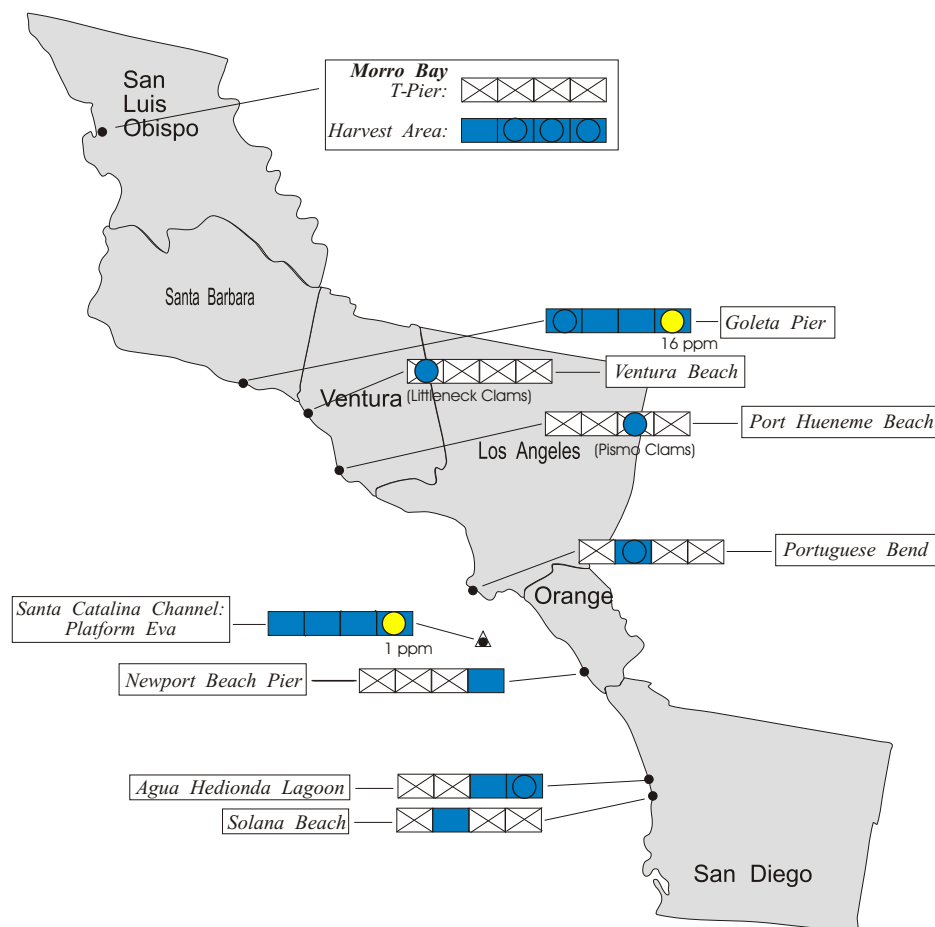


# SHELLFISH BIOTOXIN MONTHLY REPORT

March 2002

Technical Report No. 02-13

## Distribution of Shellfish Biotoxins Southern California



### KEY FOR SHELLFISH BIOTOXIN DATA

Week: 1 2 3 4

**PSP Range:** [X] [Blue Circle] [Yellow Circle] [Red Circle]  
(ug/100 g) no sample not detected < 80<sup>1</sup> ≥ 80

**DA Range:** [X] [Blue Circle] [Yellow Circle] [Red Circle]  
(ppm) no sample not detected < 20<sup>2</sup> ≥ 20

<sup>1</sup>PSP Alert Level <sup>2</sup>DA Alert Level  
● = Single Site ● = Multiple Sites ▲ = Offshore Site

Source: DHSMarine Biotoxin Monitoring and Control Program, March 2002.

### INTRODUCTION:

Please note the following conventions: (i) All data are for mussel samples, unless otherwise noted; (ii) All samples are analyzed for PSP toxins; domoic acid (DA) analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA). Please refer to the figure key for an explanation of the symbols used for the time of month of sample collection and the toxicity range.

### Southern California Summary:

**Paralytic Shellfish Poisoning (PSP):** PSP toxins were not detected in any shellfish samples from southern California sites during March.

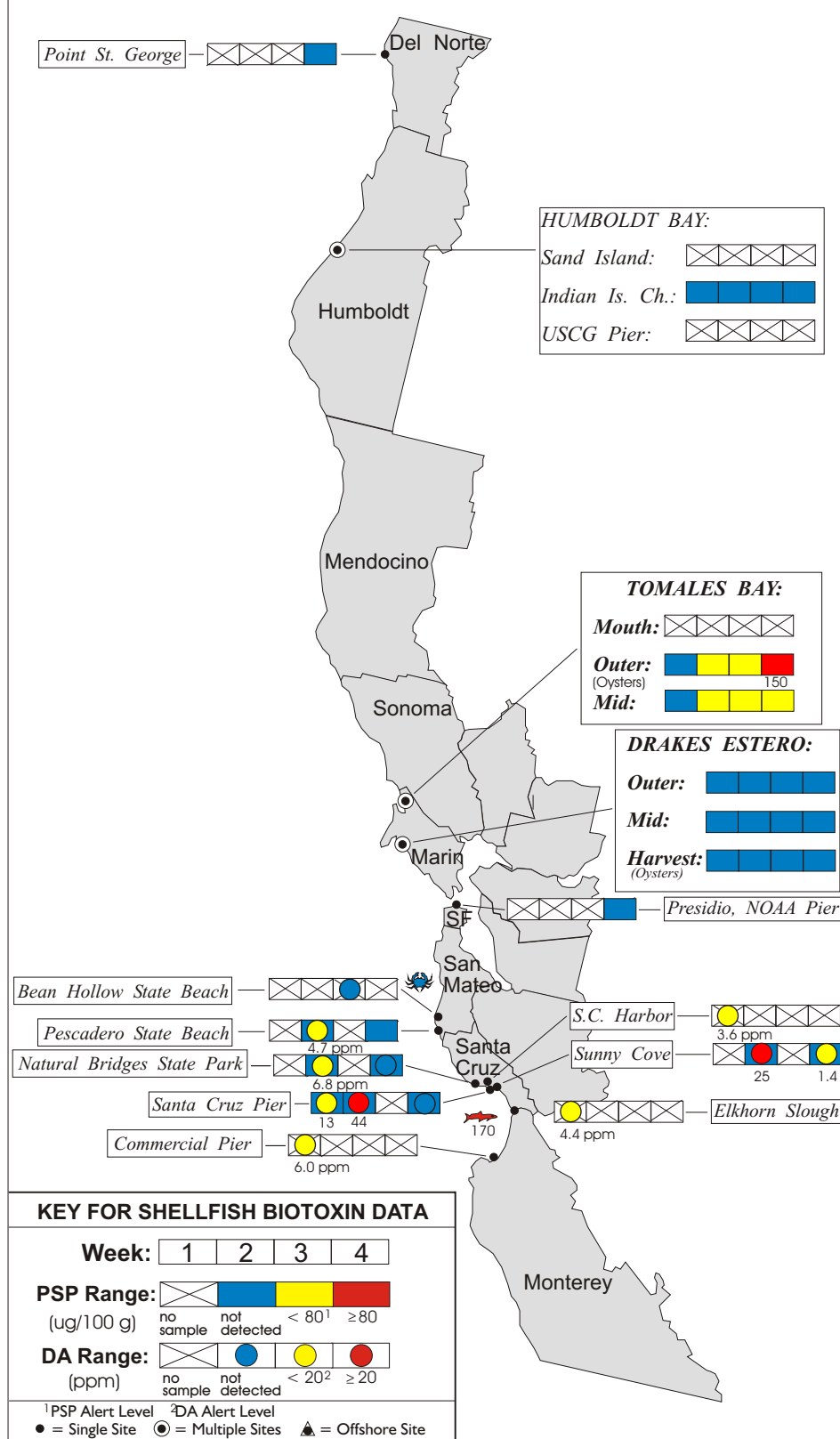
### Domoic Acid (DA):

DA concentrations increased to 16 ppm in mussels from Goleta Pier (Santa Barbara County) by the end of March, coinciding with observed increases in *Pseudo-nitzschia* at this time. A low level of DA was also detected in mussels from offshore of Orange County on March 26.

For Information on our Volunteer  
Field Sampling Program Please Call:

(510) 540-3423

## Distribution of Shellfish Biotoxins Northern California



### Northern California Summary:

#### Paralytic Shellfish Poisoning (PSP):

PSP toxins were only detected in shellfish from Tomales Bay (Marin County) during March. By March 31 the PSP toxin concentration (150 ug) had exceeded the alert level in the outer Bay, resulting in a harvest closure that remained in effect until the toxin concentration declined to safe levels. Low levels of PSP toxins were also detected in mussels from farther inside Tomales Bay at Marconi Cove. Both of these occurrences are extremely rare, particularly in the absence of PSP toxins elsewhere along the coast.

#### Domoic Acid (DA):

The high concentration of DA detected in mussels in February from the Santa Cruz Pier declined quickly in the beginning of March. However, there appeared to be a brief increase to 44 ppm on March 12 before concentrations steadily declined to safe levels. The only other location in which DA was detected above the alert level was at Sunny Cove (Santa Cruz County). Mussels collected on March 11 from this site contained 25 ppm DA. Lower levels of DA were detected in mussels from Monterey to San Mateo counties during the first week of March. Anchovies caught in Monterey Bay and collected by the Food and Drug Branch contained elevated levels of DA during the beginning of March and declined throughout the month.

*The Marine Biotoxin Monitoring and Control Program is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins.*

*For More Information Please Call:  
(510) 540 - 3423*

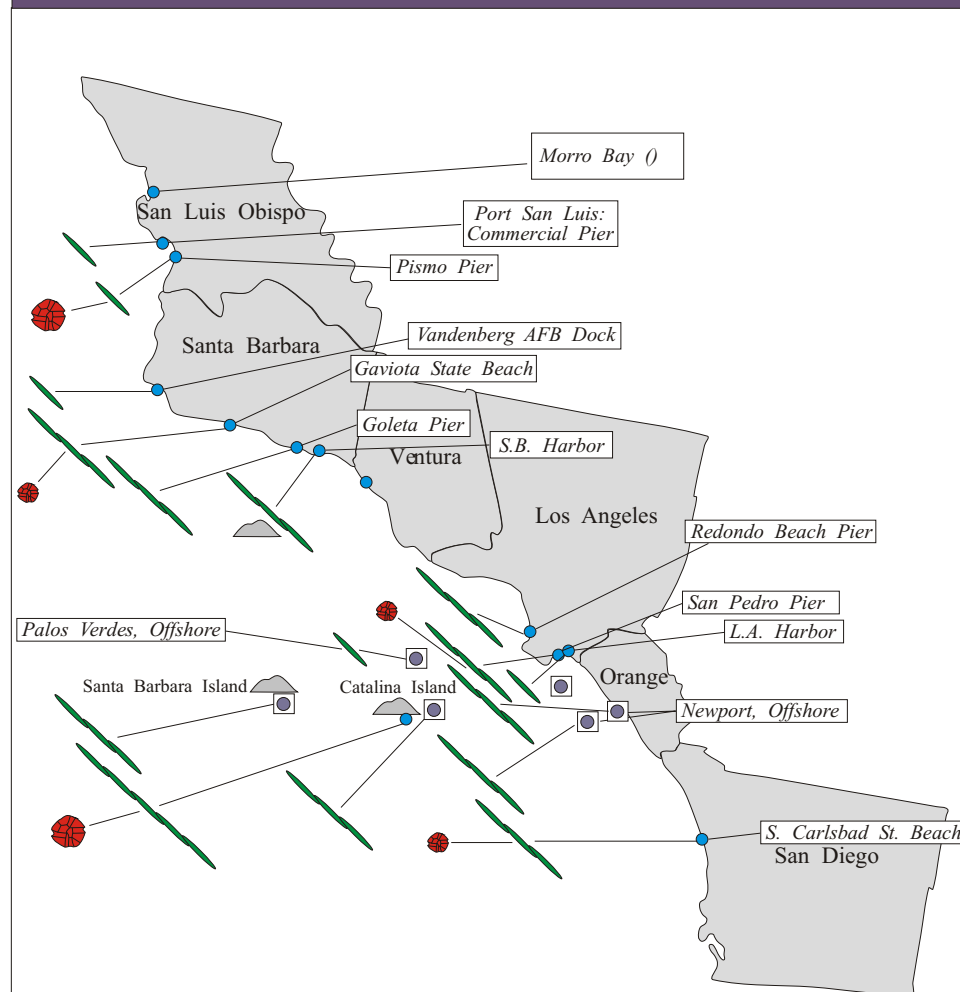
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(800) 553 - 4133*

# Phytoplankton Monthly Report

March 2002

Technical Report No. 02-14

## Distribution of Toxin-Producing Phytoplankton Southern California



### Southern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). Observations of *Alexandrium* increased slightly along the southern California coast during March.

*Pseudo-nitzschia* species (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* numbers increased along the southern California coast in March at several locations.

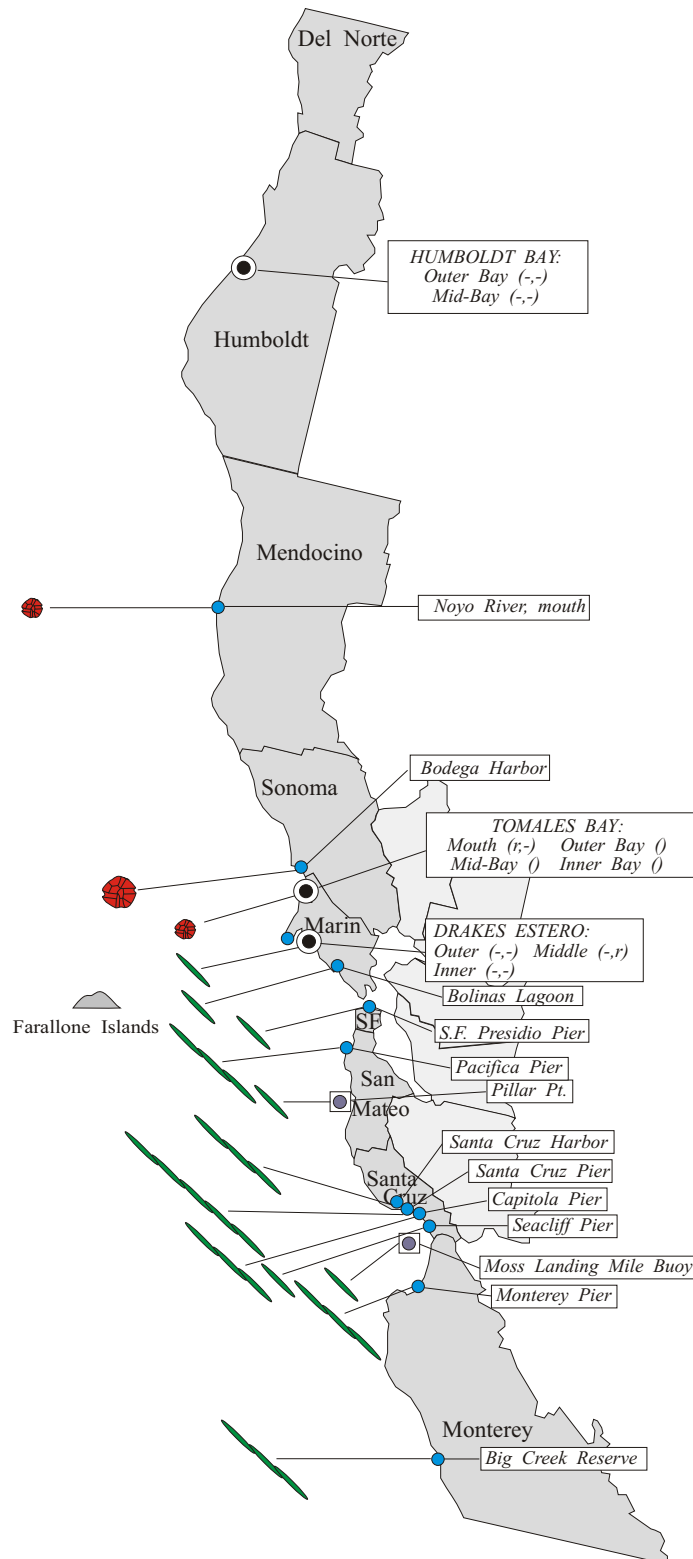
This diatom increased in relative abundance at several sites offshore and along the coast of Los Angeles by the end of March. Volunteer observers on Catalina Island (Catalina Island Marine Institute) and offshore of the Island (Catalina Tall Ships Expeditions) reported a bloom of *Pseudo-nitzschia* during the last weekend in March. This coincided with the first reported dolphin stranding on a Los Angeles beach, the first of many such strandings in April and May. A similar pattern was observed along the Santa Barbara coast. A rapid increase in the relative abundance of this diatom was observed at several Santa Barbara sites by the end of March, coinciding with the detection of elevated levels of domoic acid in mussels from this region.

*The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.*

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## Distribution of Toxin-Producing Phytoplankton Northern California



### Northern California Summary:

*Alexandrium catenella* (Dinoflagellate that produces paralytic shellfish poisoning (PSP) toxins). Low numbers of *Alexandrium* were observed along the northern California coast between Marin and Mendocino counties in March.

*Pseudo-nitzschia species* (includes all known potential domoic acid producing diatoms). *Pseudo-nitzschia* increased in distribution and relative abundance along the northern California coast between Monterey and San Mateo counties. High densities of this diatom continued to be reported by the University of California, Santa Cruz (UCSC) at the Santa Cruz Pier. Samples from volunteer collectors in this area revealed high relative abundances of *Pseudo-nitzschia* at several sites inside Monterey Bay and southward along the Monterey coast. The relative abundance of this diatom peaked at the beginning of March and began to decline through the month. This pattern was consistent with the observed decline in domoic acid concentrations in mussels from this region (see technical Report No. 02-13 for shellfish toxin data).

*The Phytoplankton Monitoring Program, managed by the California Department of Health Services, is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact California's valuable shellfish resources or become a threat to consumer safety.*

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